Vol. 60
No. 11

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NOVEMBER

Firestone

GROUND GRIP TIRES

Helped Henry Keppy Raise His Crop of Hybrid for the National Cornhusking Contest

ALBERT KEPPY, oldest son of Henry Keppy, specializes in raising purebred hogs. Raises more than 100 bushels of corn per acre.

HERE'S one family of farmers that won't have to worry about loss of traction due to "caking up" the tread, bending of the traction bars or rapid wear. The patented Firestone Ground Grip Tread with its exclusive, triple-braced traction bars provides maximum pulling power, positive self-cleaning action, easier riding and longer wear. Only Firestone Ground Grip Tires can give you all of these advantages, because they are the only tires made with triple-braced, continuous traction bars. Yet they cost no more than ordinary tractor tires. That's why it pays to order your *new* tractor delivered on Firestone Ground Grip Tires or to change over your *present* tractor to Firestone Ground Grips — *the greatest traction tires ever built.*

HENRY KEPPY, Jr., second son of Henry Keppy, successful livestock grower and feeder. Raises more than 100 bushels of corn per acre.

HENRY KEPPY, on whose farm near Davenport, Iowa, the 1940 National Cornhusking Contest will be held. Mr. Keppy and his six sons have Firestone Ground Grip Tires on all their tractors.

RALPH KEPPY, third son of Henry Keppy, three times cornhusking champion of Scott County and successful breeder of purebred livestock.

RAYMOND KEPPY, fourth son of Henry Keppy, successful livestock feeder and enthusiastic grower of hybrid corn. Each year maintains a large number of test plots.

Davenport, Iowa
September 16,
1940

Mr. C. W. Humphrey
District Manager
The Firestone Tire & Rubber Co.
Des Moines, Iowa

Dear Mr. Humphrey:

I feel it is a great honor to have a field of corn on my farm selected as the site of the 1940 National Cornhusking Contest. I think you will be interested in knowing that the tractor used in plowing, planting and cultivating this field is equipped with Firestone Ground Grip Tires.

The skill, speed and human endurance it takes to win the contest make it a famous sporting event. For years I have followed the results of the National Cornhusking Contests and have marveled at the tremendous amounts of corn these men husk in such a short period.

At the same time, I am glad there is a faster, cheaper method of husking corn than by hand, and I am sure one of the reasons all six of my sons have decided to farm is that modern power methods have made farming more attractive and more profitable.

Several years ago we decided to try rubber on our farms, and bought a set of Firestone Ground Grip Tractor Tires for the home place. We soon found we could raise corn and other crops much cheaper and easier, and my sons now have their tractors equipped with Ground Grip Tires.

I can assure you we would no more think of farming without Firestone Ground Grip Tractor Tires than we would of husking corn by hand.

Yours truly,
Henry Keppy

MORE FARM TRACTORS ARE EQUIPPED WITH FIRESTONE GROUND GRIP TIRES THAN WITH ANY OTHER MAKE

Listen to the Voice of Firestone with Richard Crooks, Margaret Speaks and the Firestone Symphony Orchestra under the direction of Alfred Wallenstein, Monday evenings, over N. B. C. Red Network

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CALENDAR OF COMING MEETINGS and EXHIBITS

Nov. 12-14—Connecticut Pomological Society 50th anniversary meeting, Hotel Garde, Hartford.—H. C. C. Miles, Sec'y, Milford.

Nov. 13-14—Minnesota State Horticultural Society annual meeting, also winter meeting and fruit judging contest Minnesota Fruit Growers' Association, Nov. 14, St. Paul Hotel, St. Paul.—R. S. Mackintosh, Sec'y, Horticultural Society, St. Paul; J. D. Winter, Sec'y, Growers Assn., Mound.

Nov. 14-15—Wisconsin Horticultural Society 72nd annual convention, Hotel Racine, Racine.—H. J. Rahmlow, Sec'y, Madison.

Nov. 20-21—Iowa State Horticultural Society and Iowa Fruit Growers Association annual meeting, in conjunction with Little Mid-West Horticultural Exposition and Holiday Show, Ames.—R. S. Herrick, Sec'y, State House, Des Moines.

Nov. 21-22—Tennessee State Horticultural Society annual meeting, Nashville.—G. M. Bentley, Sec'y, Knoxville.

Nov. 25-26—South Dakota State Horticultural Society 56th annual meeting, Sisseton.—W. A. Simmons, Sec'y, Sioux Falls.

Nov. 26-28—Nebraska State Horticultural Society annual meeting, in conjunction with Organized Agriculture, Lincoln.—E. H. Hoppert, Sec'y, Lincoln.

Dec. 2-4—Washington State Horticultural Association 36th annual meeting, Yakima.—J. C. Snyder, Sec'y, Pullman.

Dec. 3—Arkansas State Horticultural Society annual meeting, Bentonville.—Thomas Rothrock, Sec'y, Springdale.

Dec. 3-5—Michigan State Horticultural Society annual meeting, Apple Show and exhibits, Civic Auditorium, Grand Rapids.—H. D. Hootman, Sec'y, E. Lansing.

Dec. 3-5—New Jersey State Horticultural Society annual meeting, Haddon Hall, Atlantic City.—Arthur J. Farley, Sec'y, New Brunswick.

Dec. 3-5—Virginia State Horticultural Society annual meeting, George Washington Hotel, Winchester.—W. S. Campfield, Sec'y, Staunton.

Dec. 4-5—Kentucky State Horticultural Society annual meeting, Paducah.—Ted Cooper, Sec'y, Paducah.

Dec. 4-5—Oklahoma Pecan Growers Association annual meeting and show, Okemah.—D. C. Mooring, Sec'y, Stillwater.

Dec. 5-6—Kansas State Horticultural Society annual meeting, Chamber of Commerce Bldg., Kansas City.—George W. Kinkead, Sec'y, Topeka.

Dec. 6-7—Montana Horticultural Society annual meeting, Polson.—Geo. L. Knight, Sec'y, Missoula.

Dec. 9-10—Oregon State Horticultural Society annual meeting, Medford.—O. T. McWhorter, Sec'y, Corvallis.

Dec. 10-12—Indiana Horticultural Society annual meeting, Indianapolis.—R. L. Winklepleck, Sec'y, Lafayette.

Dec. 11-13—Peninsula Horticultural Society annual meeting and exhibit, Dover, Del.—T. F. Manns, Sec'y, Newark, Del.

Dec. 18-20—Illinois State Horticultural Society annual meeting, Belleville.—Joe B. Hale, Sec'y, Kell.

Jan. 8-9—Maryland State Horticultural Society 43rd annual meeting, Hagerstown.—A. F. Vierheller, Sec'y, College Park.

Jan. 8-10—Massachusetts Fruit Growers Association annual meeting, Worcester.—Wm. R. Cole, Sec'y, Amherst.

Jan. 13-14—Southern Illinois Horticultural Society annual meeting, Carbondale.—Cornell H. Eckert, Sec'y, Belleville.

Jan. 14—Vermont Horticultural Society annual meeting, in conjunction with Union Agricultural meetings, Jan. 14-17, Burlington.—C. H. Blasberg, Sec'y, Burlington.

(Continued on page 15)

MULTIPLY this picture by the number of cars and trucks in this country today, and you have a miracle such as the world has never seen before—a miracle which is unmatched anywhere in the world today outside America.

It is the miracle of 25 million people owning and enjoying a mechanism as complex and competent as an automobile.

In a single year—this year, for instance—the industrial genius of America turns out some three million new cars—more than the *total* owned in any other country on the face of the globe.

Many things make this miracle possible—including the American railroads.

For mass production depends on *mass transportation.*

And what that means is this:

There are more than 17,000 parts in a single automobile—many of them made in widely scattered cities. One industrial writer has estimated that the materials in an automobile travel by rail an average of six times before the car finally rolls from the assembly line.

The materials needed for building automobiles come from every state in the union. Cotton must travel an average of 1,300 miles, copper 1,500 miles, wool 1,700 miles, lead 1,100 miles—iron and steel travel from mines to mills to factories where frames, bodies and other parts are made before arriving at the point where the cars are finally built.

So the automobile industry has come to depend on the clocklike regularity of the railroads. Many plants handle parts straight from freight car to assembly line with no stored supply or "float" of motors, frames, wheels, transmissions or other parts on hand. This helps reduce the cost of your car.

Perhaps you have never paused to consider such facts as these—any more than you have realized that much of the food you eat, the clothes you wear, most of the things you use every day were brought together from every part of the nation by rail.

As a matter of fact, that's the finest tribute anyone could pay to railroad service. It works so dependably and smoothly, you almost forget it's there.

SEE AMERICA—by Rail
You can take your car along too
NOW—TRAVEL ON CREDIT
See your ticket agent about Grand Circle Tour!

ASSOCIATION OF
AMERICAN RAILROADS
WASHINGTON, D. C.

HOW TO BE A *Tire Expert..*

PERHAPS you've never bought tractor tires before. But don't let that bother you.

You can be an expert by drawing on facts you already know.

For example—you know that you'll want to use your tractor where the ground is soft—when the grass is slippery with dew—and a lot of other places where going isn't perfect.

You know, when a tire tread gets filled with dirt it will slip and spin just like a smooth tire.

You know that pockets catch dirt—just like a horse's hoof—so you want a tire tread without closed corners or pockets.

And you know that you want a tire that can stand the bumping and bending of hard service, because you're going to keep that tire for years.

All right then—look at the tire pictured here.

WHEN YOU'RE PICKING THE RUBBER FOR YOUR TRACTOR

Notice that every big husky lug stands alone—so dirt can slide right out. Common sense tells you that tread will be *self-cleaning.*

Notice that *all lugs are the same size*—and *even-spaced.* That means smooth riding on highways—and even pull in soft ground. No jerks to start spinning.

Notice that this tire is made by *Goodyear.* The experience of the world's largest tire manufacturer stands behind its quality.

Whether you're buying a new tractor or putting new tires on your present one—be sure you get Goodyear Sure-Grips and you'll be sure of getting the best tires any tractor can have today.

• • •

P. S. For your car or truck there is a complete range of Goodyear tires and they cost far less than you imagine.

THE SELF-CLEANING TRACTOR TIRE

Open center—no mud traps. Look at the lugs on that tire. Each one is separate. No pockets where earth can pack.

Even spacing—no jerks. See how those lugs are placed—with plenty of space between them—and all spaced the same. That means an even pull—no jerks to start slipping.

Buttressed base—no lug tear. Those lugs are broader at the bottom than at the top—each one is self-reenforced. No need to join them together to hold them on. They're strong enough to stand alone.

←EVEN A SCARECROW KNOWS A SELF-CLEANING TREAD GRIPS BETTER

THE GREATEST NAME IN RUBBER

GOODYEAR

SURE-GRIP—the Self-Cleaning Tractor Tire

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NOVEMBER 1940
VOL. 60 No. 11

AMERICAN FRUIT GROWER

The NATIONAL FRUIT MAGAZINE

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WHO'S TO BLAME FOR BRUISED APPLES

SO LONG as apples are sold in a fresh state and not processed, the factor of care in handling is paramount. Yet a surprisingly large number of growers seem to blind themselves to this problem. Until apples reach the consumer in as perfect condition as they were when removed from the tree, the fruit grower has not entirely solved this important matter.

A few years ago we were in the orchards about Canterbury, England, at harvest time. The care in handling the apples was impressive. Each picker used cotton gloves. The fruit was taken by hand from the picking receptacle and laid into a shallow field box. At no time were the apples poured or dumped from one receptacle into another. We remarked about it to one owner and operator of a 900-acre orchard and asked if it were not expensive to handle them all by hand and stated that we poured them from the picking bag or pail into a field box. He looked at me in genuine astonishment and said rather acridly, "Why that would bruise them."

Last year we toured the Hudson Valley at harvest time and were again surprised to find a number of large operators who did not put McIntosh over a grader, but sized and graded them by hand over a canvas table such as we used years ago before the sizing machine was used in the East. All of this points to a trend. It is a trend of growers to see to it that their fruit shall not be bruised and that it shall reach the consumer in all of its perfection. Such a program is a meritorious one and worthy of this great industry in which America has led all countries since the rise of commercial orcharding more than 70 years ago.

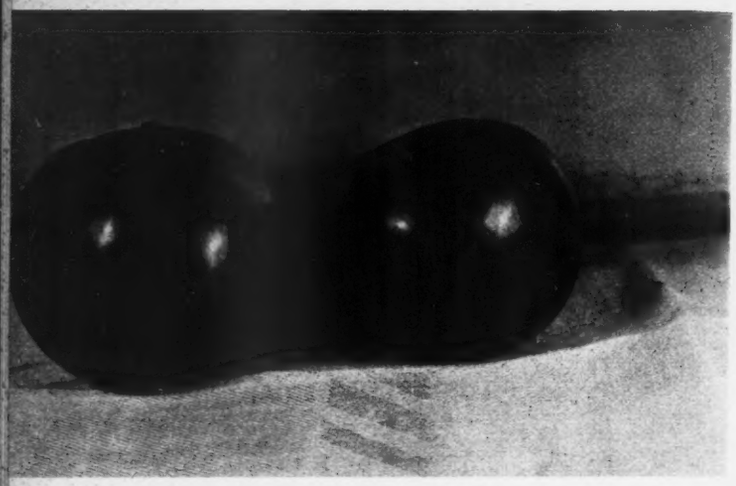
But it does little good to scold about a situation until some constructive suggestions can be made to remedy it. This has been done, at least in part, both by research agencies and by growers. The important steps in such a solution are to determine at which operations the bruising occurs and then to provide means of avoiding it. Overholser, for instance, found that there was 90 per cent sound fruit when it was picked in a 20-quart pail as against 80 per cent when picked in canvas bags. Stem punctures were doubled in number by use of canvas picking bags as against pails. Smock at Cornell found that carefully handled apples resulted in 84 per cent perfectly sound fruit after a period of storage, whereas when the fruit was dropped six inches into the picking receptacle, only 50 per cent sound fruit resulted. But how many pickers stop at dropping them six inches!

The Ohio Experiment Station has recently published results of its observations and shows that grading operations were a much more serious factor in causing bruises than picking and hauling to storage. The type of grader also was a factor. Ungraded apples showed 98.3 per cent had less than five bruises per apple, hand graded had 92.3 per cent, belt type grader had 81.9 per cent and weight type grader had only 58.9 per cent with less than five bruises per apple. This means more sponge rubber on the graders, more care in conveying the fruit to the final container.

Varieties show a difference in susceptibility to bruising. Baldwin and Delicious, for instance, handle better than McIntosh, Stayman and Jonathan.

The human factor is also important. Some workmen are careless and should not be used in this work, others are, by nature, sensitive to the fact that apples are living organisms.

That some of the trouble happens after it leaves the hands of the grower is true, but, after all, the producer can still improve the situation.



Two McIntosh apples which were a year old when the picture was taken. They had been stored in controlled atmosphere storage. Quality and flavor were good.

Interior of a controlled atmosphere storage room. Because of special construction methods, this room will be made completely airtight when the door is sealed.

Checking concentrations of carbon dioxide and oxygen.

CONTROLLED ATMOSPHERE STORAGE

By RICHARD T. MEISTER

EARLY in the year 1921 at Histon, England, two men tugged at a sliding shutter in a heavy wooden door and peered anxiously through the window they had just opened.

In the half light of the interior they could dimly see neatly stacked boxes and trays containing apples within oiled paper wrappers. After reaching inside, one of the men pulled out a Bramley's Seedling apple, juicy and firm. "I say," he exclaimed to his companion, "look how well these fellows keep!"

The two men were Franklin Kidd and Cyril West, pioneer research workers in the development of gas storage of fruit in England, which has been adopted in this country as controlled atmosphere storage.

They had just opened a semi-commercial eight-ton capacity gas storage and found to their joy that previous tedious experiments on a small scale had justified the erection of the first semi-commercial gas storage known to man.

Conservatively, in true English style, they later wrote of their experiment: "On the whole the experiment was a success in the commercial sense. The fruit retained its greenness, firmness and juiciness to a remarkable extent. The prices obtained were good, and reports received concerning the appearance and condition of the fruit flattering."

This was but the first chapter in the amazing history of gas or controlled atmosphere storage which even today—20 years after the first trials at Histon, England—is yet incompleted.

What exactly is controlled atmosphere storage? Why does it make apples keep longer? What are the gases used in this type of storage? Will controlled atmosphere storage some day take the place of cold storage? These are all pertinent questions that the uninformed reader anxiously asks in order to find how controlled atmosphere storage will affect him and his business.

To understand perfectly how this type of storage works, the grower must first realize that the fruit is a living organism which continues to live even after being removed from the tree. The fruit breathes, gives off carbon dioxide and takes in oxygen. This process of respiration consumes the food stored within the fruit and when all the food is exhausted

the fruit loses quality and value. In other words, the fruit dies.

But if the fruit is put to sleep directly after being picked, the breathing process slows down, food is used more slowly, and storage life is increased.

Gas storage was first named by the English workers Kidd and West who did not foresee the misunderstanding which would arise from the use of such a term because many people naturally associate gas with harmful effects. Because of this, and because oxygen as well as carbon dioxide is controlled in the American technique, it was considered advisable by research workers in the United States to change the name gas storage to controlled atmosphere storage.

—Editors

Lowering the temperature is one way to slow down the rate at which fruits live. Apples, for example, at 35 degrees F. breathe at one-fifth the rate they do at 70 degrees F.

Controlled atmosphere storage similarly slows down the fruit's life processes. Carbon dioxide, which accumulates in the storage room, is used as an anesthetic to put the fruit to sleep. Also in some types of controlled atmosphere storage, the percentage of oxygen in the air is decreased, which gives the fruit less "tinder" so that the living process is further slowed down.

Controlled atmosphere storage does not apply equally well to all varieties of apples. In fact, some varieties do not store well at all in this type of storage.

American investigators have obtained remarkable results, however, with the McIntosh apple. By reducing the oxygen to two per cent, raising the carbon dioxide to five per cent, and keeping the temperature at 40 degrees F., it was found by Dr. R. M. Smock and A. Van Doren at Cornell University that McIntosh could be stored until June or July. In regular refrigerated storage without carbon dioxide they kept only until February.

On May 10, 1940, a truckload of McIntosh apples stored in controlled atmosphere storage at Cornell was shipped to New York City. The apples brought the top price on the market, $2.25 a box. The request was wired back to Cornell, "Ship all your apples and quote your own price."

Because of the promising results Cornell workers obtained with the controlled atmosphere storage of McIntosh, several growers in New York State have built similar storages for their McIntosh apples. Grower Claude Hepworth at Milton, N.Y., has built one, as have growers O. Jolly at Sodus, John Hall at Lockport, Stuart Hubbard at Poughkeepsie and the Sodus Cold Storage at Sodus.

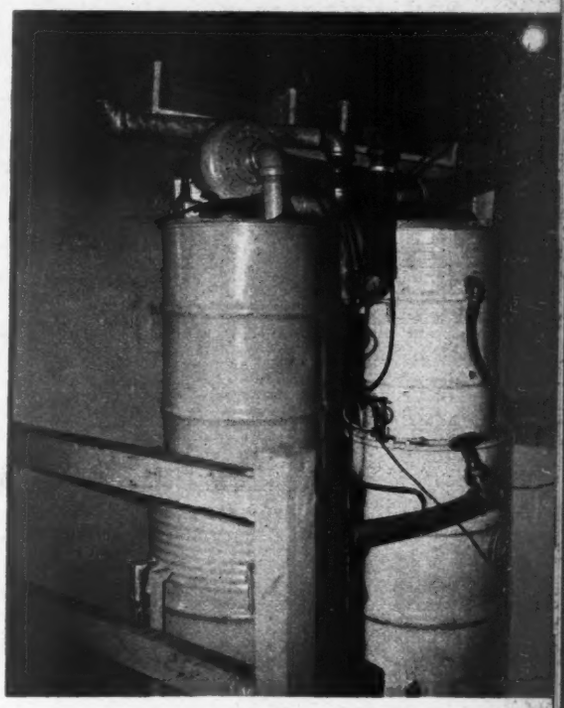
Results with other apples have not been so promising. At Cornell it was discovered that Rhode Island Greening will not keep well in controlled atmosphere storage because it is particularly susceptible to scald which is more prevalent in controlled atmosphere storage than in regular refrigerated storage. Northwestern Greening gave more promising results because scald can be controlled. Twenty Ounce keeps well in controlled atmosphere storage, and Cortland also stores well but is susceptible to scald.

In California, Yellow Newtown apples grown in the Pajaro Valley store well in controlled atmosphere storage because it is not necessary to keep storage temperatures as low in this type of storage as in regular cold storage. Thus the low temperature trouble, internal browning, to which Yellow Newtown is especially susceptible, can be avoided.

Long-time controlled atmosphere storage with stone fruits has not been promising because the high percentage of carbon dioxide causes injury.

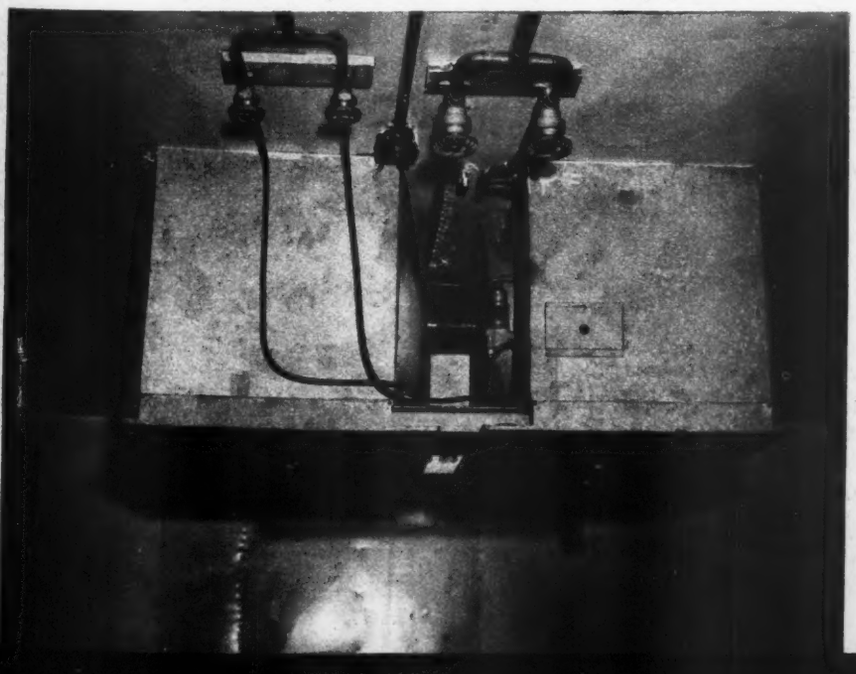
(Continued on page 11)

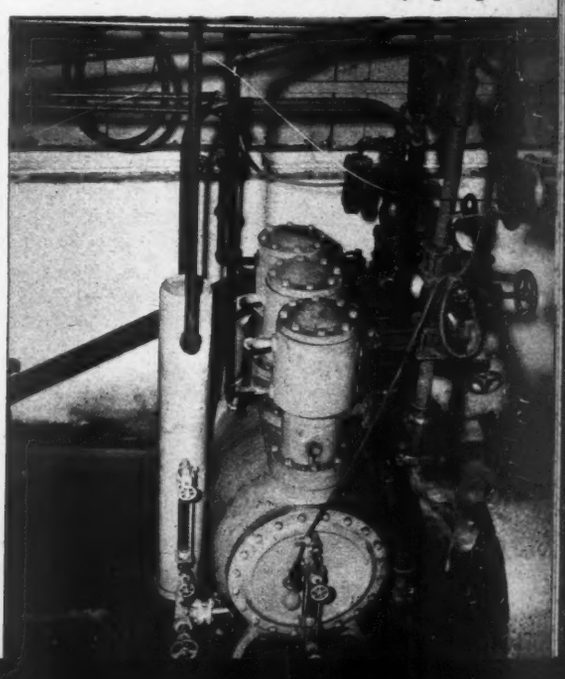
Exterior of controlled atmosphere storage room showing door with ventilation port through which oxygen is admitted to room and fruit examined.



Equipment which "scrubs" the air in the storage room. It removes excess carbon dioxide from the air which the fruit is continually giving off.

Below, right—Refrigeration equipment used in controlled atmosphere storage. Below—Blower system in a controlled atmosphere storage such as used in many cold storage plants.





STATE NEWS

The extent to which growers have been constructing storages on their fruit farms the past five years is indicated in the following paragraphs. That this vast activity is having a pronounced effect on the marketing of fruit, resulting in more orderly handling of the crops, is brought out in these reports.—Editors

PENNSYLVANIA—During the past season about 15 fruit farm storages have been constructed in this State, some of them of the air-cooled type and others the direct ammonia type system. During the past five years an estimated 75 farm storages have been built. As a result of this activity there has been a more orderly marketing of fruits, especially where growers are catering to local or nearby markets. The fruit has come out of storage in much better condition and many growers report increased repeat sales.—J. U. RUEF, Sec'y, State College.

KANSAS—Ten new farm storages have been started or completed this fall, some air-cooled and others with refrigerator units. During the past five years at least 25 other farm storages have been developed. Since trucks furnish the principal outlet for most Kansas orchards, the farm storage is helpful in giving truckers a load that better meets their needs.—W. G. AMSTEIN, Extension Specialist, Manhattan.

OHIO—Of the more than 200 farm apple storages in the State, approximately 15 per cent are equipped with refrigeration units. Most of the refrigerated storages have been built during the past five years. I would estimate that storage space on farms has increased at least 30 per cent during the past five years. Storage space has increased during the past year about 10 per cent. Since Ohio trade is inclined to buy fresh-packed fruit direct from the farm storage, there is a decided trend to continue the development of farm storages with as much refrigeration as can be arranged on a practical basis.—F. H. BEACH, Sec'y, Columbus.

VERMONT—To my knowledge, two growers are constructing storages this year, one of them a controlled atmosphere storage of about 7000 bushels capacity, the other a regular type cold storage. I know of two storages, and possibly three, that will be constructed by next fall, when our growers anticipate a large crop. During the past year two cold storages have been constructed, and in the last five years about nine have been built or enlarged. Perhaps the biggest advantage of cold storage in this area is the fact that it enables the grower to perform his harvesting operations with a much smaller crew than was necessary when he picked and packed for immediate shipment.—CHARLES H. BLASBERG, Sec'y, Burlington.

MICHIGAN—Possibly 25 or 30 storages have been built in Michigan this year, and there will probably be as many more storages built this coming year. A new innovation in the cooling of air-cooled storages is being tried out this year by a number of growers. Ice bunkers have been built in the storages and electric fans installed to circulate the air. —H. D. HOOTMAN, Sec'y, East Lansing.

WEST VIRGINIA—Of the seven storages built within the last five years, four were constructed within the past year. All but one of these are relatively large refrigerated outfits.

Miss Mary Lou Bullard

RULE HARVEST FESTIVAL

Miss Mary Lou Bullard of Wheeling, W. Va., will reign as queen over 50,000 subjects at the Sixth Annual Apple Harvest Festival to be held at Martinsburg, W. Va., November 8-11. Miss Bullard earlier this year was selected in a nationwide contest as the All-America College Queen of 1940.

King of the festival will be Henry Walton Miller, Jr., of Martinsburg. Mr. Miller is vice-president and general manager of the Consolidated Orchard Company which has an average annual apple output of more than 200,000 bushels. Miller comes rightfully by his "throne," his father, Henry W. Miller, Sr., having served as king of the first annual festival in 1935.

Henry Walton Miller, Jr.

At fruit growers' meetings this autumn and winter we will learn how much construction activity is likely to take place this coming year.—R. H. SUDDS, Extension Horticulturist, Morgantown.

IOWA—This fall we have had five new storages built, and during the past five years about 15 fruit farm storages have been constructed. The tendency is to build more and more storages on fruit farms because they help to solve some of the marketing problems.—S. W. EDGECOMBE, Extension Horticulturist, Ames.

CONNECTICUT—During 1940, two cold storages, with a capacity of 28,000 bushels, and one air-cooled storage have been constructed on fruit farms. There may be five additional cold storages built during the next five years. During the last five years 10 farm cold storages have been built in this State with a total capacity of over 200,000 bushels. In Connecticut, public cold storages for apples have a capacity of 187,000 bushels. Cold storages on Connecticut fruit farms at present have a total capacity of 659,500 bushels. In addition, there are dealers' cold storages totaling 47,000 bushels, or a total cold storage facility for Connecticut equal to 893,500 bushels. Connecticut fruit growers in general have found that a cold storage on the farm has been extremely beneficial in their marketing program.—H. A. ROLLINS, Extension Fruit Specialist, Storrs.

KENTUCKY—No fruit farm storages have been built in the State for several years. During 1926 when apples were selling for 25 cents a bushel at harvest time, 20 or more air-cooled storages were constructed at the eleventh hour. Apples held until February and early March of the following year averaged 65 cents per bushel tree run. Storage building cost amounted to about 32 cents a bushel. A similar marketing condition has prevailed during four of the past 12 years. As one grower has expressed it, he more than paid for the storage the first year and had the house left.—W. W. MAGILL, Field Agent in Horticulture, Lexington.

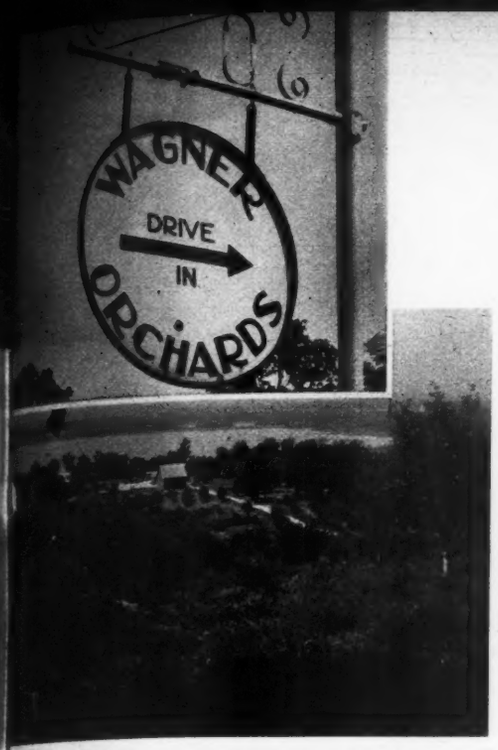
WISCONSIN—Fruit growers in the State have built a considerable number of fruit storages in the past five years and there will be more building in the future because of the favorable experience growers have had thus far in holding their fruit more satisfactorily for themselves as well as for the market. An estimate of the number of each type of storage built would be as follows: Of the refrigerated type, 10 or 12; above-ground, air-cooled type, 20; bank storages, 50 or more. —C. L. KUEHNER, Fruit Specialist, Madison.

MARYLAND—Two growers have just completed fruit storages, one refrigerated, the other to be refrigerated later. In 1939 two storages were built on Maryland fruit farms with capacities of 12,000 and 20,000 bushels. In the past five years three fruit farm storages have been constructed. Excellent condition of the fruit at the end of the storage period is due, growers report, to their personal control of the fruit and their care in proper ventilation and maintenance of correct temperatures.—A. F. VIERHELLER, Sec'y, College Park.

NEW YORK—There is and has been for at least 15 years a considerable interest in cold storages on the farm. The development first came in the Hudson Valley and in sections close to market. Further emphasis was given to the movement by the development of automatic cold storage features and also by the high prices offered for McIntosh late in the spring which had been kept in good condition. Interest has been steady and has increased each year until now there are any number of fruit farm cold storage plants not only in the Hudson Valley in western New York.—H. B. TUKEY, Chief in Research, Geneva.

"AMERICAN FRUIT GROWER INSPIRED ME TO BUILD MY OWN COLD STORAGE"

GILBERT WAGNER TELLS JONAS HOWARD HOW HE DID IT ON A LOW-COST BASIS



Sign in front of Wagner Orchards, and view of orchard overlooking the Illinois River.

GILBERT WAGNER, owner of the Wagner Orchards in Henry, Ill., is as practical in his fruit growing activities as he is in everything else.

Since the time he planted his orchard in the midst of the depression because costs were then low, he has been producing quality apples for the local markets.

Golden Delicious, Red Delicious, Winesap and Jonathan trees make up the 60-acre orchard on the 375-acre Wagner farm.

But ever since Gilbert Wagner has been producing fruit, he has been forced to unload most of his choice apples on glutted markets. So this year he decided to build his own refrigerated storage.

Practical man that he is, Wagner wanted to build his storage on a cash, pay-as-you-go basis, instead of financing it. He faced, therefore, the problem of building a storage adequate for his purposes, yet on a definite low-cost budget basis.

Being essentially practical, Wagner laid out a budget for building a record low-cost storage—one without all the conveniences of the more highly-priced structures, but still capable of performing reasonably well the fundamental purpose of all storages—making fruit keep.

When a grower builds a storage it is news. When a grower builds a storage at a new low cost it is BIG NEWS. So AMERICAN FRUIT GROWER editors dispatched me to Henry, Ill., to interview Gilbert Wagner in order to get the inside story on the new storage—the cold facts about it.

I found Wagner inside the new building inspecting the installation of the insulation.

"Just the man I want to see," he shouted in order to make himself heard over the shrieking of a band saw. As proud of his storage as a father is of a new-born babe, Wagner drew me aside and enthusiastically explained all the details of construction, from the floor to the roof.

"AMERICAN FRUIT GROWER started me thinking about cold storages," Wagner told me, "and convinced me that a cold storage would increase the profits from my orchard.

"I investigated every story your magazine has published on cold storages and finally hit upon a plan to make an economical storage which would do a reasonably efficient job for me."

Wagner realized that he had to cut out all the nonessentials and make the essentials as inexpensive as possible.

As we stepped out of the partially completed storage, we could see before us the lazy Illinois River and faintly in the distance the church spire in the little town of Henry. It was then I asked the all-important question, "How much do you figure your storage will cost?"

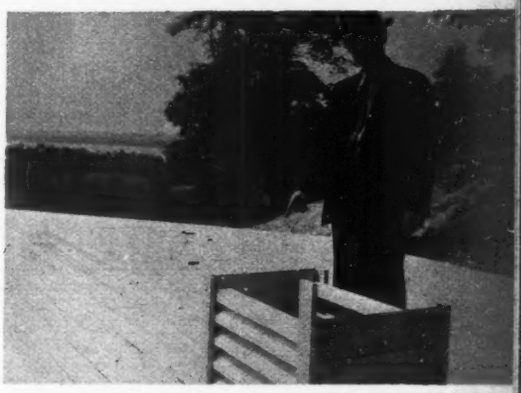
"About 47 cents a bushel, and don't forget that I built this storage from the ground up," was his surprising reply. "It contains about 20,000 cubic feet and I believe it will hold about 10,000 bushels."

Wagner went on to say, as we climbed the short hill leading to his home, that he had long realized his need for his own cold storage. "I think," he summarized, "that the salvation of the fruit grower today depends entirely on his ability to hold crops and not dump them on overloaded markets. That's why I decided to build my own storage."

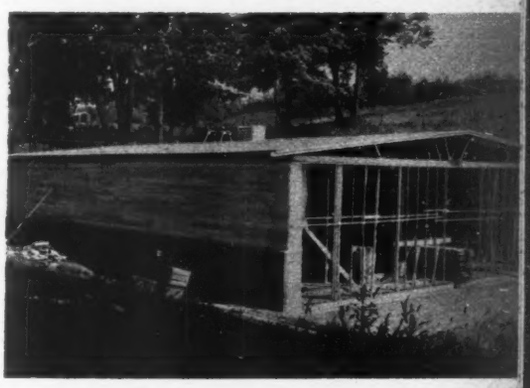
"How large a refrigerating unit do you plan to use?" I asked. As every grower knows, for a certain capacity storage different sizes of refrigerating plants may be used. Some growers like large oversize units so they will be sure to get low temperatures and others use smaller units in an effort to economize.

"With this storage," Wagner answered, "I plan to use a five-ton refrigerating plant which is about half what the average grower would use. I hope to be able to lower the temperature of 500 bushels of fruit from 70

(Continued on page 10)



Wagner pointing at ventilation port on roof of 10,000-bushel capacity refrigerated storage.



Exterior View of Wagner cold storage plant showing how building was placed in a hollow.

Above—Interior of nearly-completed storage. Below—Siding nailed over insulation sheets.

APS

A PAGE CONDUCTED IN THE INTERESTS OF THE AMERICAN POMOLOGICAL SOCIETY

NEW VARIETIES—THEIR EFFECT ON THE INDUSTRY

THE American Pomological Society was founded in 1848. Its early work was largely devoted to a study of the many varieties of fruits available to the grower. Obviously, there were too many varieties and too little information about their characteristics. The horticulturists of that era devoted a great deal of time in collecting information as to the behavior of varieties, and out of these studies came the famous fruit lists which were published by the American Pomological Society. During the past 20 years, the New Fruits and Nuts Committee has made annual reports on new varieties. These reports have been published in the annual proceedings of the society and are an invaluable source of information as to the origin of the many new fruits which have been named and introduced during this period.

New varieties are important contributions to our horticulture, but it requires considerable time for the testing and proving of these new sorts. As has been true in the past, most of the new varieties fail to make good, but new varieties occasionally prove themselves worthwhile and profoundly affect the fruit growing industry. For example, the Japanese x Americana hybrid plums have almost entirely supplanted the native Americana varieties previously grown in the Middle West. This has occurred during the last decade. In this same area varieties such as Underwood, Elliot, Monitor, Superior, Ember and Kahinta are preeminent among the Japanese x Americana hybrids. The leading sand cherry hybrids are Sapa, Oka and Opata.

Peaches were a short crop in the midwestern area this year. Low temperatures during the winter were responsible. Strange as it may seem, there are occasional orchards in Iowa in which a fair crop of peaches was produced. Iowa is not a peach state, yet many people "plant and hope" nearly every year. One grower reports that 10 young trees of the Polly peach produced 40 bushels; this, in spite of temperatures 20 or more degrees below zero. Trees of Polly at the Iowa Experiment Station produced about 10 per cent of a crop. Polly is a white-fleshed peach of the Champion type. Sungold, a yellow-fleshed peach, did even better at the Iowa station. Both varieties showed less than five per cent live buds after the January low of -25 degrees F. A number of seedling trees planted in 1937 produced a 100 per cent crop. Their fruit buds showed from 50 to 70 per cent live buds. These peaches do not compare well with standard varieties, but are sufficiently good to be of extreme interest to Iowa and other areas where peaches have been regarded as too winter-tender to be worth planting.

The hunt is on for better early apples. The outstanding defect among early varieties is their dropping. Midwest experience with Melba, Early McIntosh, Milton, Hume and many others is that the fruit ripens unevenly and drops immediately when red. Melba is the choice of this group, as judged by several years of observation. Beacon looks good, but it is too new to recommend except for trial.

New winter apples, which are now listed by nurseries and are being planted by commercial growers for limited tests, are Edgewood and Secor. These are later in season than Jonathan and hang very well to the tree. Hardier new sorts for farther north are Sharon, Joan, Hawkeye Greening and Haralson. Cortland does well on the loess soils along the river areas, but is not suited to prairie soils. Turley has done exceedingly well in western and southern Iowa.

W. L. Lantz
SECRETARY
AMERICAN FRUIT GROWER

A LOW-COST STORAGE

(Continued from page 9)

degrees to 30 degrees F. in a day with this unit."

What type insulation Wagner was using was my next question. Sheet cork; granulated cork; rock, bark and glass wool; wood fiber and cane board; and reflective surfaces are all types of insulation that growers must investigate in order to find the type best suited to their particular conditions.

"I investigated all insulation types thoroughly," Wagner answered, "and finally decided that reflective insulation was my best bet because of what it would do for my purposes and still fit my budget.

"This insulation is called reflective insulation because it reflects the heat or radiant energy. It does not have a highly polished surface such as those surfaces have which reflect light because it is meant to reflect a minimum amount of light and a maximum amount of radiant energy or heat. When these heat rays impinge on the surface of the reflective insulation they are reflected off into space.

"I put five layers of reflective insulation under the floor and left a dead air space of three-fourths to one inch between each layer," he said. "I put four layers on the walls and ceiling and one layer on the roof."

Besides the actual cost of building a storage, there are numerous incidentals, all of which increase expense if allowed to accumulate. Not the least of these is a conveyor system for easy handling of boxes of fruit in and out of the storage. "I'm going to make my own conveyor for apple boxes out of ordinary roller skate ball-bearing wheels," Wagner asserted. "What I plan to do is bolt the shafts with the wheels at the end on a two by four every six inches."

When I asked if his storage would be ready for this year's crop, he said he planned to fill the storage to capacity this fall. "I hope to get 25 to 50 cents more per bushel now that I can control my marketing," he stated, "and if I do I will be able to pay for the storage in one to two years."

Besides apples Wagner raises 600 to 1400 turkeys every year. "The two go hand in hand," he said, "for I can always sell apples to people who come to buy turkeys and I can invariably sell a turkey to those who come for apples."

Just before I left he told me he makes cider out of his cull apples. "Now with my cold storage," he proudly beamed, "I can store cider in barrels and have it to sell the whole year round."

He said this with a good deal of satisfaction, as anyone should who is looking ahead to larger profits from his fruit business. As we said before, Wagner is a mighty practical man.

CONTROLLED ATMOSPHERE STORAGE

(Continued from page 7)

However, short periods of exposure to carbon dioxide were found to retard softening and coloring.

With strawberries and raspberries, it was proved that carbon dioxide gas retarded decay and kept the berries firm and bright.

Some pear varieties store remarkably well in controlled atmosphere storage. A 20-week increase in storage life may be expected if proper atmosphere concentrations and proper varieties are used.

"Ah," now exclaims the enthusiastic reader, "controlled atmosphere storage is a new type of storage that will answer all fruit growers' storage problems because at a low cost apples can be kept for unheard of lengths of time."

This, however, is not entirely true. Growers must realize that controlled atmosphere storage is a modification of refrigerated storage, not a substitute. With controlled atmosphere storage, the same amounts of refrigerating equipment and insulation are needed as in refrigerated storage. Although temperatures are usually kept higher in this type of storage than in refrigerated storage, it takes as much refrigerating equipment to pull the heat out of the fruit when the apples first enter the storage room.

Also, an additional cost is involved because the storage must be absolutely airtight so that proper concentrations of oxygen and carbon dioxide may be maintained. Controlled atmosphere storage increases the cost per bushel as much as 10 cents over refrigerated storage.

There is no expense for carbon dioxide because living fruits naturally give off carbon dioxide in sufficient quantities. With McIntosh, which is stored in an atmosphere of five per cent carbon dioxide and two per cent oxygen, after the storage is closed and is airtight, it takes three to five days for carbon dioxide to build up to five per cent. After that the air in the storage room is run through a "scrubber" which removes excess carbon dioxide from the air and keeps the concentration steady at five per cent.

As the fruit gives off carbon dioxide, it uses up oxygen so that the percentage of oxygen in the storage air steadily decreases. In one to two weeks, the oxygen content of the air is reduced to two per cent. To replenish the oxygen supply, the storage is ventilated once every three to four days.

What, now, are the disadvantages of controlled atmosphere storage? What are the hidden flaws which the average grower cannot see unless he makes a thorough investigation of this type of storage?

Briefly, there are four disadvantages:

1. Controlled atmosphere storage is not universally applicable to all fruits or to all varieties of one fruit.

2. The storage room cannot be entered at the grower's convenience. It must remain airtight until the apples are taken out. If the operator attempted to enter he would be in danger of suffocation.

3. It is difficult to make buildings airtight, which means added cost over regular refrigerated storage.

4. Hazard of storage scald is increased because of poor ventilation. This necessitates the use of oiled paper to prevent scald.

There are also four main advantages to controlled atmosphere storage besides the all-important fact that it makes apples keep longer.

1. Low temperature troubles like brown

(Continued on page 15)

STRAWBERRIES PAY

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

Of AMERICAN FRUIT GROWER, published monthly at Cleveland, Ohio, for October, 1940.
STATE OF OHIO
COUNTY OF CUYAHOGA } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared E. G. K. Meister, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the AMERICAN FRUIT GROWER and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Fruit Grower Publishing Company, 1370 Ontario St., Cleveland, Ohio; Editor, J. H. Gourley, 1370 Ontario St., Cleveland, Ohio; Managing Editor, Dean Halliday, 1370 Ontario St., Cleveland, Ohio; Business Manager, E. G. K. Meister, 1370 Ontario St., Cleveland, Ohio.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)
American Fruit Grower Publishing Company, 1370 Ontario St., Cleveland, Ohio; E. G. K. Meister, 1370 Ontario St., Cleveland, Ohio; R. B. Campbell, Richmond, Virginia; Mary Lee Adams, Greenwood, Virginia.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is (This information is required from daily publications only.)

E. G. K. MEISTER,
Business Manager.

Sworn to and subscribed before me this 23rd day of September, 1940.
(Seal) H. Willkom, Notary Public.
(My commission expires October 18, 1941.)

NUT GROWERS MEET

THE Northern Nut Growers' Association held its 31st annual meeting September 5-7, 1940, in Roanoke, Va. About 75 nut culturists from the eastern and central states were present. A full program covered many aspects of hardy nut culture, with considerable emphasis on chestnuts. Extensive stands of the American chestnut in the vicinity of Roanoke, now eliminated by the blight, made the emphasis on blight-resistant Oriental chestnuts of especial interest. The speakers emphasized the possibilities of chestnuts as an orchard crop rather than a timber crop. H. F. Stoke of Roanoke discussed "Chestnuts in Eastern United States," while Sam Hemming of Easton, Md., and D. C. Snyder of Center Point, Iowa, presented the possibilities of chestnuts in their respective regions. Dr. A. S. Colby of the University of Illinois told of his chestnut breeding experiments and Miss Hilda Vilkoverson of the Brooklyn Botanic Garden discussed "Pollination Habits of the Chestnut." Diseases of chestnut trees and nuts were discussed by G. F. Gravatt and M. E. Fowler of the U.S.D.A.

Frank E. Brown of Roanoke, Va., told of the mountain methods of producing and marketing black walnut kernels. The native walnut crop makes a substantial contribution to the income of the residents of the mountains. An extensive survey of nut growing in the northern and central states was reported by John Davidson of Xenia, Ohio. The survey indicated that while substantial progress was being made in nut culture, much remains to be done. Two talks of especial interest to amateur cultivators of nut trees were given by Dr. Lewis Theiss of Bucknell University and Dr. L. H. MacDaniels of Cornell University.

C. A. Reed, U. S. Horticultural Station, Beltsville, Md., expounded the benefits of sawdust as a mulch for nursery nut trees and John T. Bregger of the Soil Conservation Service discussed "Practical Soil Management and Conservation Practices for Nut Plantings."

The reports of the treasurer and secretary indicated the healthy financial condition of the association and a steady increase in membership, now more than 300. The 1941 meeting will be held in Hershey, Pa., September 4-6. The nut tree collections of Dr. Zimmerman are not far from Hershey. The officers were re-elected for the following year, and are as follows: Dr. A. S. Colby, University of Illinois, president; H. F. Stoke, Roanoke, Va., vice-president; D. C. Snyder, Center Point, Iowa, treasurer; and G. L. Slate, Geneva, N. Y., secretary.—G. L. SLATE, Sec'y, Northern Nut Growers' Assn., Geneva, N. Y.

TREE REMOVAL PROGRAM

EFFORTS of the National Apple Planning Committee have resulted in the adoption of the Marginal Apple Tree Removal Program in the 1941 Federal Soil Conservation Program. The program is defined as follows:

In counties designated by the State AAA Committee, payment will be made for the removal of diseased or uneconomic apple trees, the major portion of whose fruit is of inferior quality. Payment will be made only for the removal of live, permanent trees and not for the removal of filler or semi-permanent trees. Land so cleared shall not be used for the growing of soil-depleting crops during the year for which payment is made. No payment shall be made for trees less than five inches in diameter. The rate of payment for trees five to 12 inches in diameter will be 30 cents per tree; for trees over 12 inches in diameter, 50 cents per tree. Not more than $15 per acre may be earned under this practice.

Leaders in the industry urge growers to co-operate fully in the plan and thus help toward solving the cull apple problem.

NEW

- POWER PRUNER
- INFORMATIVE BOOKLETS

By HANDY ANDY

POWER PRUNER •

Mechanization has entered the pruning field, offering growers a real labor saver. No manual effort is required to operate the new Magennis Power Pruner outside of placing the cutting blades of the shears in position to make the desired cuts.

The hydraulic pump which activates the shears receives its energy from the half-horsepower gasoline engine with which this outfit is equipped. Power impulses from the pump are transmitted to the cutting shear through hydraulic pressure hose enclosed in the telescopic handle.

One of the accompanying illustrations shows the complete outfit, which is mounted on a two-wheeled rubber-tired carriage. The other photo shows a closeup of the cutting head and shears ready to cut through a good-sized branch. The manufacturers claim that 15 to 20 pruning cuts per minute can be made with this pruner and that branches up to one and one-half inches can be readily pruned.

This power pruner is particularly adapted for the larger orchard or grove.

Trial installations of a new type of ultra-violet lamp to check fruit decay are being made in California packing houses, fruit juice plants, etc. Investigations have shown that mold spores causing decay may be killed by direct exposure to the rays from the lamp. The new germicidal lamp differs from the sun lamp in that it releases only the shorter length waves which are known to have the greatest power of any of the light waves.

A chemical substance known as nor-nicotine that may have possibilities as a stomach poison against insects, has been found in the mild-flavored tobaccos or those of low-nicotine content, reports L. N. Markwood, U.S.D.A. chemist. Tobaccos of extra-high nicotine content are now used in nicotine insecticides. In limited tests with animals, the new chemical was found to be much less poisonous than nicotine. Insect tests of nornicotine prepared from low-nicotine tobacco are planned.

Chemists of the U.S.D.A. have found that a mixture of rosin and mineral oil is a good sticker for derris and may prove valuable with other insecticides. The rosin-mineral-oil mixture is prepared from materials that are cheap and easily available. Orchard tests showed, it is reported, that the mixture of sticker and poison did not injure trees or fruit.

INFORMATIVE BOOKETS •

ELECTRIC LIGHT FOR THE FARMSTEAD is the title of Farmers' Bulletin 1838 which may be obtained free from the U.S.D.A., Washington, D.C. Good lighting being a form of insurance against accidents in the home, in the barn and in the packing house, the bulletin has been published to supply lighting information to old, new and prospective users of electricity. Electricity is available today to nearly two million United States farms and more lines are being built every month. The 60-page illustrated bulletin covers equipment for various purposes and contains directions for selection and installation.

HOW TO SELECT AND APPLY STEEL ROOFING ON FARM BUILDINGS is the title of Republic Steel Corporation's 32-page booklet. If, as the saying goes, one picture is worth a thousand words, then this booklet with its many photographs and detailed drawings will provide the reader with a wealth of information in a form that can be readily assimilated.

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Lenonet Bags are easy and inexpensive to pack. Shipping costs are less and the fruit reaches the retailer in better condition. More and more merchants are insisting on fruit and produce in Lenonet. Growers, therefore, find Lenonet a sure way to win demand for their crops.

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● A "ROUND TABLE" PAGE FOR EVERY GROWER ●

BUILDS CONTRIVANCE FOR HAULING BRUSH

HOW to remove brush from the orchard cheaply and quickly is a problem that bothers many fruit growers. It bothered Glen Mills of Ohio enough to make him invent a device which he claims makes brush hauling very easy.

"The easiest way to haul brush and trimmings from the orchard," Mr. Mills writes, "is with the following device. Use a length of No. 9 woven fence wire, four or five feet wide and about 25 feet long. On each end of this piece of fencing, wire a two by four for pulling purposes. Also put several two by fours through the center of the wire fencing to keep the brush from slipping.

"Load with brush and pull to the brush pile. Unhitch, throw a rope over the top of the brush to the rear two by four and then hitch. Pull ahead and brush is rolled into a tight pile ready to be burned. I have used this device on very hilly ground and it works in fine fashion."

FINDS OLD VARIETIES OF STRAWBERRY PLANTS

COLLECTOR of varieties of strawberries no longer in cultivation, E. D. Scott of Michigan reports that he is having great success in his search for old varieties.

"From up near the Straits," he writes, "I got a plant which, from the description of the fruit, I believe to be Sharpless, introduced in 1877. From Pennsylvania I obtained Triumph of Cumberland, a famous old-timer, and supposed by Prof. Fletcher to be out of cultivation in 1917. This is indeed a prize. Through the courtesy of the U.S.D.A. and George F. Waldo of the Oregon Experiment Station at Corvallis I received plants of the Wilson, discovered in 1851. From these three plants we get most of our modern varieties.

"Another welcome addition was Early Michel, which came from an AMERICAN FRUIT GROWER reader only four miles from my home. It may be asking too much to expect to find Hovey, the first hand-pollinated variety, dating back to 1833.

"I have dug up plants in fields abandoned and grown up to trees, in old fence corners and along roadsides near localities where old-time growers had their plantings. I am certain that some of these stray plants are not wild types, and only await identification."

This is a page where growers get together for an exchange of experiences and ideas. Both the beginner and veteran will find here many valuable suggestions for better and more profitable fruit growing. In return for helps you receive from this page, pass on your new ideas, methods or procedures. Just jot them down and mail to ROUND TABLE EDITOR, AMERICAN FRUIT GROWER. One dollar will be paid for each item published.

Above—A window screen hanger, as Frank Bentley describes elsewhere on this page, makes a handy twine cutter. It is necessary to sharpen the outer and lower portions of the inside of the end of the hanger.

INVENTS HANDY TWINE CUTTER

FRANK BENTLEY of Iowa, decided that cut fingers too often result from the usual blade-type cord cutters. So it wasn't long before he devised a twine cutter out of a window screen hanger which cuts twine easily but does not cut fingers.

"Homemade cord and twine cutters," Mr. Bentley writes, "are in most cases made of any handy blade-like discard that can in some manner be put up where cord is needed. Cut fingers are too often the result of such devices because the cutting edge is exposed and can come in contact not only with the fingers but with other parts of the body.

"A common window screen hanger can be easily put up and used for a cutter. Sharpen the outer and lower portions of the inside of the square end. The other part can be attached to the wall some six or eight inches above, and will hold the twine in position. Draw down the amount of cord needed through the square and gripping both sides, pull it quickly over the lower edge. The inside of the end is a cutting edge also. It is impossible for the fingers to forcibly contact the cutting edges."

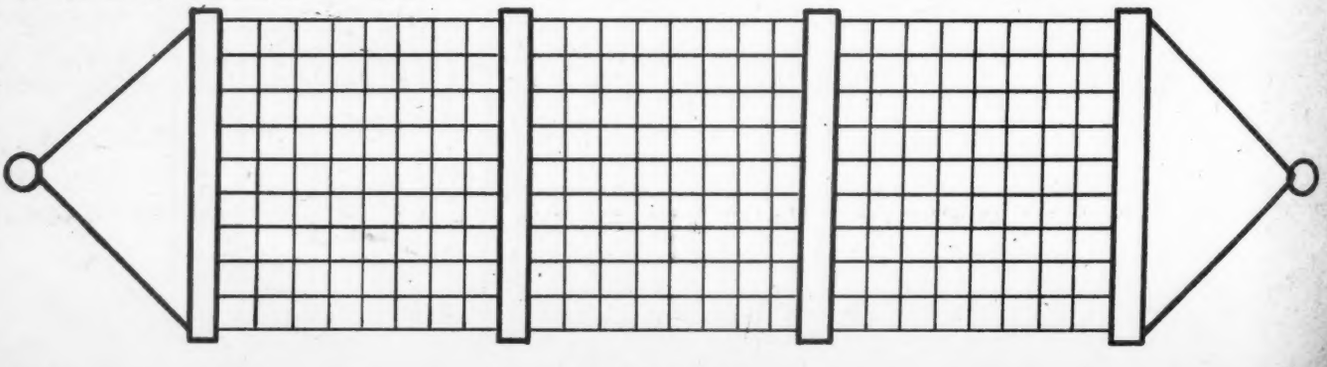
SAVES FRUIT CROPS WITH OLD STUMPS

MISSOURIAN E. R. Gorton makes the somewhat amazing statement that he can save fruit crops with old stumps. It sounds like a magical trick but is really very simple, as Mr. Gorton points out.

"While preparing firewood during the winter," he writes, "we often find knotty stumps too tough for the axe and too big for the stove. Instead of letting them lie around we place them in piles at various places through the orchards.

"The following spring, when the trees are in bloom and a cold night comes, we sprinkle the piles with some crankcase drainings well diluted with kerosene and light them. The old stumps smoke and smoulder for hours, thus preventing damage from frost. Several fruit crops have been saved in this way."

Below—This is the brush hauling device which Glen Mills discusses on this month's "Round Table" page. It is made of No. 9 woven fence wire, four or five feet wide, 25 feet long, with two by fours at the ends.



M. J. DORSEY

HEADS HORTICULTURE AT ILLINOIS

DR. M. J. DORSEY, chief in the Division of Pomology, has been appointed head of the Department of Horticulture in the University of Illinois College of Agriculture, succeeding Dean and Director Emeritus J. C. Blair who organized the department and served as its first and only head for 43 years. An authority on pomological nomenclature, Dr. Dorsey has contributed to standard reference books, "The Grapes of New York" and "The Plums of New York," and is chairman of the committee on nomenclature of the American Pomological Society.

CONTROLLED ATMOSPHERE

(Continued from page 11)

core, internal browning, soggy breakdown, soft scald and brown heart are avoided because higher temperatures in the storage are used. For instance, 40 degrees is the standard temperature for McIntosh.

2. Change of ground color from normal green to yellow in apples and pears is retarded.

3. The high concentration of carbon dioxide has an inhibiting effect on the growth of molds.

4. There is a great residual effect so that even when the fruit is taken from controlled atmosphere storage it keeps better than fruit taken from cold storage.

At present, controlled atmosphere storage is a specialized treatment for certain varieties of fancy apples, as only those apples which will bring a high price on the market may profitably be put in this modification of regular refrigerated storage.

What the future will bring, what additional chapters will tell, depends on the diligent investigations of men like Kidd and West, Smock and Van Doren, Allen of California, and a host of other workers, all of whom are spending long hours of research trying to perfect controlled atmosphere storage of fruits.

MEETINGS AND EXHIBITS

(Continued from page 3)

Jan. 14-17—New York State Horticultural Society 86th annual meeting, exhibits and fruit show, Rochester.—Roy P. McPherson, Sec'y, Le Roy.

Jan. 21-23—Maine State Pomological Society annual meeting, Armory, Lewiston. —E. L. White, Sec'y, Bowdoinham.

Jan. 27-29—Ohio State Horticultural Society annual meeting, Horticulture Bldg., Ohio State University, Columbus, in connection with Farmers' Week.—F. H. Beach, Sec'y, Columbus.

Jan. 29-31—New York State Horticultural Society annual Eastern meeting, exhibits and fruit show, Kingston.—Roy P. McPherson, Sec'y, Le Roy.

Feb. 12-13—West Virginia Horticultural Society 48th annual convention, Martinsburg.—C. R. Miller, Sec'y, Martinsburg.

WE'RE BOTH PARTNERS OF MOTHER NATURE

Perhaps the Home of Budweiser does Mother Nature an injustice when we say she is our partner. It is nearer the truth to say she is head of the firm. And that, you might say, puts the American Farmer pretty close to the top of our business, too.

In a word, you and Nature make Budweiser. Together you take the rains and sunshine and warm-embracing earth and transform these into fields of growing life. Together you produce the exquisite barley and aromatic hops that help to give to Budweiser its world-acclaimed flavor. Together you provide the finest of this earth's rich rewards—and we in turn provide ideal conditions for the continuation of Nature's work—slow fermentation and thorough ageing.

We of Anheuser-Busch are happy to have been so pleasantly associated with the farmer for nearly a century . . . happy to have the cream of his crop . . . happy to have perfected with such a partnership a product that has won and held world applause for quality.

We salute the American Farmer —his work and his invaluable contributions to our Industry.

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Good News for Fruit Growers!

Miss Ritz
Wolf Hall

The New McCORMICK-DEERING O-4 Orchard and Grove Tractor is Here!

It's a beauty . . . this new McCormick-Deering O-4 Orchard and Grove Tractor. It's designed especially for your requirements. Here's a nifty job—spic and span and ready to go!

This streamlined beauty has what hard-to-please owners said they wanted in an orchard and grove tractor . . . *power in a compact package, comfort, convenience, and up-to-the-minute streamlining.*

The new "O-4" features a 4-cylinder, gasoline-distillate, valve-in-head engine (high-compression straight gasoline engine optional); replaceable cylinder sleeves; Tocco-hardened crankshaft; precision-type main and connecting rod bearings; and pressure lubrication. And it offers outstanding performance at low cost—20 to 25 gallons of gasoline will keep the O-4 going for a good long day.

Give the O-4 the once-over at the International Harvester dealer's store. Slip into the seat and see how comfortable it is. Notice how handy the controls are. Ask for a demonstration. Or, write for a catalog.

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